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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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SCULLY, SCOTT, MURPHY & PRESSER, P.C.
400 GARDEN CITY PLAZA
SUITE 300
GARDEN CITY, NY 11530

EXAMINER	
KASTURE, DNYANESH G	

ART UNIT	PAPER NUMBER
3746	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,992	ZEISER, HORST	
	Examiner	Art Unit	
	DNYANESH KASTURE	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *19 Jan 05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Page 9, Line 30: "..at the instant when the, in direction of rotation.." lacks proper syntax.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. In Re claim 1, the pressure pulsation waveform repeats itself as long as the reciprocating motion of the pistons continues. Since the rotation of the swash plate causes the reciprocating motion of the pistons, there will always be a rotation angle of the swash plate (and cylindrical drum) that corresponds to the phase of the pressure waveform at the second end of the pressure compensation line, REGARDLESS of the length (L) at which the connection occurs. The phrase "..is so dimensioned that there is a phase relationship between a pressure wave .. and the angle of rotation.." is therefore

indefinite because the there is always a phase relationship between the waveform and the angle of rotation, and it is not clear how length (L) is "so dimensioned".

5. In Re claims 2 and 3, the phrase "..signifies the wavelength of the pressure wave, optionally plus and integral multiple.." is not definite. If the significance of λ is optional, why specify it ? Also, what is "plus" adding to, is it the ¾ λ ? The way the claim is presently written, the word "plus" appears to add to the word "optionally" which is not a proper syntax.

6. In Re claims 4 and 5, similarly, the phrase "optionally plus an integral" is indefinite for the same reasons discussed above.

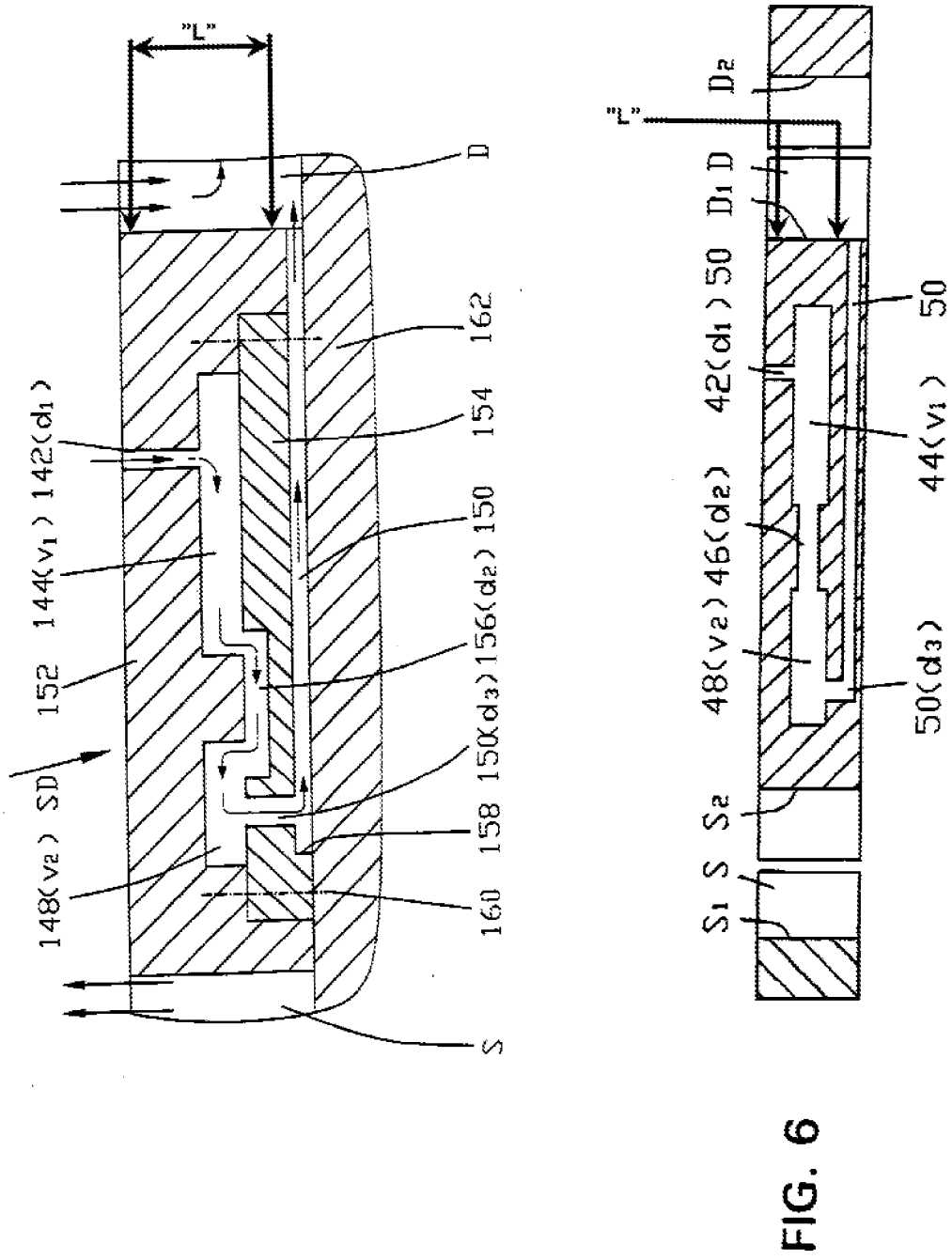
7. In Re claims 6, 7, 8 and 9, the phrase "..according to one of.." is indefinite because it is not specified which one of the claims (1, 2, 3, 4 or 5) this claim depends on. For purpose of analysis in a later section, it is assumed that "..according to any of one of.." is being claimed.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Perstnev et al (US Patent 6,024,541 A).



10. In Re claim 1, with reference to Figures 6 and 7 depicted above, Perstnev et al discloses a Piston machine (Abstract: "..hydraulic axial pump/motor..") comprising:

- a rotatably mounted cylindrical drum (26), disposed in which is a plurality of cylindrical bores (C1, C2), which are distributed over the circumference and in which displaceable pistons (P1, P2) are disposed, wherein the cylindrical bores at one side have cylindrical openings, which in accordance with the angle of rotation of the cylindrical drum are temporarily in communication in each case with one of two kidney-shaped control ports (S, D), which are connected in each case to a working line ("L", 14, 16), wherein between the kidney-shaped control ports in each case a switchover region (SD, DS) is formed and wherein;
- a first end (42 or 142) of a pressure compensation line (50 or 150) opens out at least into one switchover region (SD), characterized in that a second end (see end of line 50 or 150 depicted above) of the pressure compensation line opens into the outlet-side working line (D1, D2, 16, "L", also Column 1, Lines 32-37 state: "A tortuous passage of a non-uniform cross-section is formed in the bridging portion, allowing the by-passing of the fluid first in a direction towards the downstream side of the suction port and then towards and into the upstream side of the discharge port");
- "wherein the length (L) of the outlet-side working line between the outlet-side kidney-shaped control port and the second end of the pressure compensation line is so dimensioned that there is a defined phase relationship between a pressure wave, which is caused by a reciprocating motion of the pistons and advances in the outlet-side working line, at the point of the second end of the pressure compensation line and the angle of rotation of the cylindrical drum": As mentioned before, there is always a phase

relationship between the waveform and the angle of rotation at any point along the working line.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Alternatively, Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) and in view of Burdisso et al (US Patent 6,112,514 A)

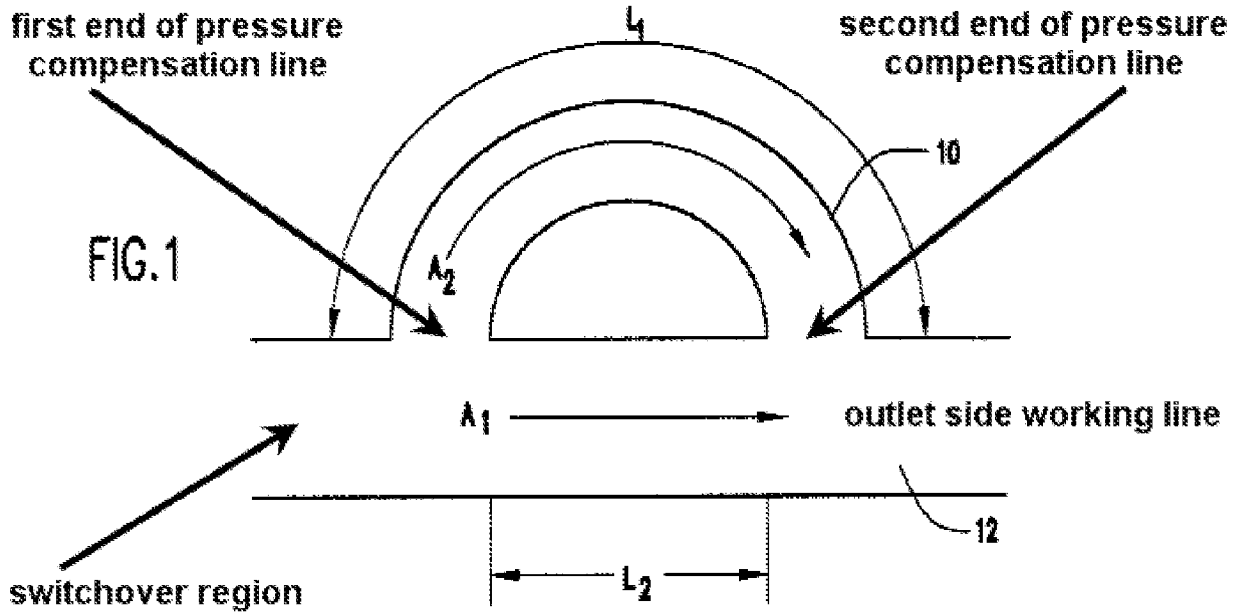


FIG.1

13. In Re claim 1, Perstnev et al as discussed earlier discloses all the claimed limitations except for an EXTERNAL line with a first end originating at the switchover region and terminating at a point on the working line.

14. Nevertheless, with reference to Figure 1 depicted above, Burdisso et al discloses a Herschel-Quincke tube arrangement where a Pressure Compensation Line (10) has its second end connected to the outlet side working line (12), and its first end originating upstream as depicted, where the length (L1 and L2) is so designed that the sound propagating through L1 cancels the sound propagating through L2 over a range of frequencies as stated in Column 5, Lines 18-22.

15. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the tortuous passage of Perstnev et al so it intersects the working line external to the kidney shaped control port (L2 is related to “L” as defined by applicant) for the purpose of reducing noise even if there is a lack of symmetry in the noise field as stated by Burdisso et al in Column 3, Lines 15- 20 (Perstnev et al discloses in Column 1, Lines 19-21: "The object of the present invention is to improve the achievement of noise reduction..").

16. Claims 2 - 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) in view of Burdisso et al (US Patent 6,112,514 A) and as extrinsically evidenced by Meier (US Patent 4,362,223 A) and Tomell et al (PG Pub US 20020098093 A1)

17. In Re claim 2, Perstnev et al and Burdisso et al as applied to claim 1 discloses all the claimed limitations except for the length "L" is ¼ λ plus multiples of λ.

18. Nevertheless, it has been held that discovering the optimum value of result effective variable involves only routine skill in the art – MPEP 2144.05 (II-B).

19. Therefore one of ordinary skill will be capable of making the length ¼ λ or multiples thereof as a suitable design choice for distance from the kidney where the second end of the pressure compensation line is connected. In addition, Meier discloses evidence in Column 2, Lines 18-30 that the length of the sound channel is a quarter of the wavelength of the sound oscillation as a suitable design choice, further reference is also made to the Quincke tube. Also, Tomell discloses evidence in Paragraph [0027] and [0029] that distance between connecting elements of a discharge line is equal to an odd multiple of one quarter of the wave length, which means that 5/4 λ, 9/4 λ, 13/4 λ are all suggested, which further translates to λ + ¼ λ, 2 λ + ¼ λ, 3 λ+ ¼ λ and so on also being suggested, so, to summarize: multiples of λ plus ¼ λ is suggested.

20. In Re claim 3, Perstnev et al and Burdisso et al as applied to claim 1 discloses all the claimed limitations except for the length "L" is 3/4 λ plus multiples of λ.

21. Nevertheless, it has been held that discovering the optimum value of result effective variable involves only routine skill in the art – MPEP 2144.05 (II-B).

22. Therefore one of ordinary skill will be capable of making the length 3/4 λ or multiples thereof as a suitable design choice for distance from the kidney where the

second end of the pressure compensation line is connected. In addition, Tomell discloses evidence in Paragraph [0027] and [0029] that distance between connecting elements of a discharge line is equal to an odd multiple of one quarter of the wave length, which means that 3/4 λ, 7/4 λ, 11/4 λ are all suggested, which further translates to λ + 3/4 λ, 2 λ + 3/4 λ and so on as being suggested, so, to summarize: 3/4 λ plus multiples of λ are suggested.

23. In Re claims 4 and 5, one skilled in the art would recognize that the angular span between successive piston/cylinder bodies (40 degrees since there are 9 pistons) would incorporate one peak of the pressure wave since each piston stroke has one maximum compression per cycle (the cycle corresponding to one complete revolution of the swash plate). It would only involve routine skill to recognize that if L=1/4 λ (Claim 4) or 3/4 λ (Claim 5) then the quotients of the angles as claimed would always have the same corresponding value at the time when peak pressure is exposed to the second end of the pressure compensation line. Note again that discovering the optimum value of result effective variable involves only routine skill in the art – MPEP 2144.05 (II-B).

24. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) in view of Burdisso et al (US Patent 6,112,514 A) and as extrinsically evidenced by Meier (US Patent 4,362,223 A) and Tomell et al (PG Pub US

20020098093 A1) as applied to claims 1 – 5 and further in view of Baars et al (US Patent 5,762,479 A)

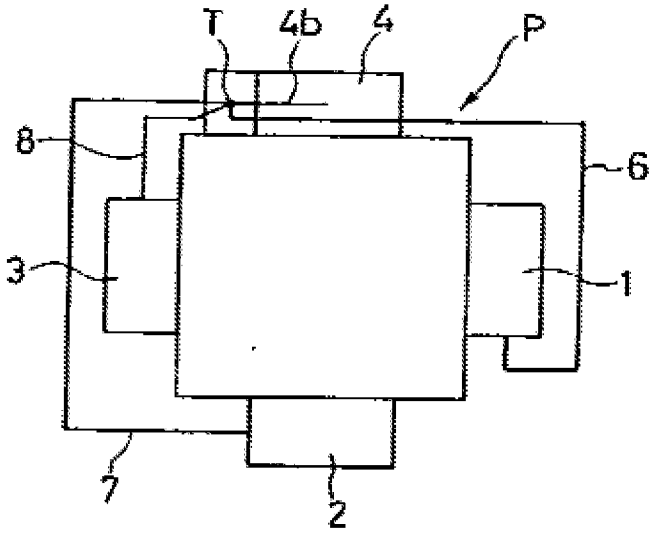
25. In Re claim 6 Perstnev et al, Burdisso et al, Meier and Tomell et al as applied to claims 1 – 5 discloses all the claimed limitations except for the length of the pressure compensation line is an integral multiple of the wavelength of the pressure wave.

26. Nevertheless, Baars et al discloses a pressure compensation line (10) has a length corresponding to a fraction, or multiple, of the wavelength of a frequency of a gas pulsation signal at the gas chamber discharge outlet (Abstract).

27. It would have been obvious to a person having ordinary skill in the art at the time of the invention to make the length of the passage of Perstnev et al equal to a fraction or multiple of the wavelength as taught by Baars et al as a suitable design choice for a length that reduces the transmission of acoustic energy without altering the efficiency as stated in Column 1, Lines 61-63 of Baars et al.

28. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) in view of Burdisso et al (US Patent 6,112,514 A) and as extrinsically evidenced by Meier (US Patent 4,362,223 A) and Tomell et al (PG Pub US 20020098093 A1) as applied to claims 1 – 5 and further in view of Nishikawa et al (PG Pub US 20030026710 A1 – Divisional of Application No. 09/917,248 filed 07/27/2001)

Fig. 7



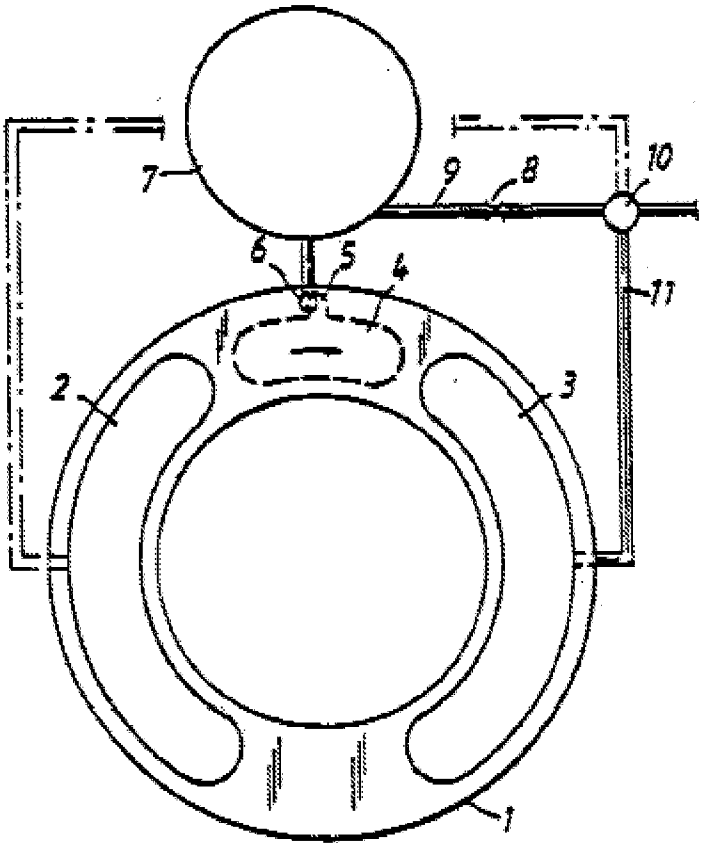
29. In Re claim 7, Perstnev et al, Burdisso et al, Meier and Tomell et al as applied to claims 1 – 5 discloses all the claimed limitations except for the phase displacement to be taken into account by correcting the length "L"

30. Nevertheless, with reference to Figure 7, Nishikawa et al discloses four different tubes with different lengths depending on the phase difference between the gases being transmitted by them so that they arrive opposed to each other Paragraph – [0052].

31. It would have been obvious to a person having ordinary skill in the art at the time of the invention to correct the length of passage of Perstnev et al in accordance with the phase of the gas being transmitted by it as taught by Nishikawa et al so that vibration or noise of the compressor can be excellently decreased as stated by Nishikawa et al in Paragraph [0055]

32. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) in view of Burdisso et al (US Patent 6,112,514 A) and as extrinsically evidenced by Meier (US Patent 4,362,223 A) and Tomell et al (PG Pub US 20020098093 A1) and further in view of Baars et al (US Patent 5,762,479 A) and Nishikawa et al (PG Pub US 20030026710 A1 – Divisional of Application No. 09/917,248 filed 07/27/2001) as applied to claims 1 – 7 and lastly in view of Bratt et al (German Patent DE 4,229,544 A 1)

Fig.1



33. In Re claims 8 and 9, Perstnev et al, Burdisso et al, Meier, Tomell et al, Baars et al and Nishikawa et al as applied to claims 1 – 7 discloses all the claimed limitations

except for the pressure accumulator element and throttling point in the pressure compensation line as set forth in the claim.

34. Nevertheless, Bratt et al discloses a pressure compensation lines (9) and (11) between an auxiliary port (6) and high pressure side, with a pressure accumulator (7) and a throttling point (8).

35. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the passage of Perstnev et al modified by Burdisso et al so it has an accumulator and throttle point in the pressure compensation line as taught by Bratt et al for the purpose of achieving more effective damping of flow pulsations as stated by Bratt et al (in the Summary of the Invention section).

Conclusion

36. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hubner (US Patent 5,555,726 A) discloses another means for attenuation of fluid borne noise for a 9 piston/cylinder hydraulic piston pump.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

DGK